

## **Introduction**

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Data abstraction is the process of extracting information or data from a variety of resources. The South Carolina Injury Surveillance (SCIS) Program utilizes Data Abstractors to extract data from the following sources: inpatient/emergency room medical records, vital records and coroners reports. Inpatient/emergency room abstractions focus on individuals diagnosed with Epilepsy, Traumatic Brain and Traumatic Spinal Cord Injuries. Vital record and coroner's office abstractions focus on violent deaths that occurred in South Carolina.

The purpose of this manual is to provide step-by-step instructions for developing and implementing a data abstraction program. Common abbreviations and definitions used in the South Carolina Injury Surveillance Program can be found in Appendix A. Sample forms mentioned throughout the manual can be found in the Appendices section.

The following describes the sections discussed in this manual.

<b><u>Section</u></b>	<b><u>Description</u></b>
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|------|---|
| I.   | Step-by-step process for recruiting, interviewing, and selecting Data Abstractors employed in the SCIS Program.   |
| II.  | Training process for Data Abstractors   |
| III. | Data Abstraction Process used in South Carolina   |
| IV.  | Quality assurance measures put in place to ensure accuracy of data. The quality assurance section is constantly undergoing changes as we discover better ways of improving and validating our data abstraction process. |
| V.   | Appendices  |

## Section I

### Recruitment and Selection

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The South Carolina Injury Surveillance Program recruits Data Abstractors who are American Health Information Management Association (AHIMA) certified. These include professionals who work in the medical records departments at hospitals across the state or are graduates of Health Information Management (HIM) programs from the state's technical schools. Applicants who are graduates of other two (2) year colleges *and* who have at least two years of recent medical records coding experience are also considered when recruiting. AHIMA certified Data Abstractors can be:

- Registered Health Information Administrator (RHIA)
- Registered Health Information Technician (RHIT)
- Certified Coding Specialists (CCS)

#### 1. Recruitment

Vacancy announcements for Data Abstraction positions are sent to:

- Medical Records Directors at hospitals located in the region where the vacancy occurs;
- Health Information Management Program Directors at statewide technical training institutions; and
- The South Carolina Health Information Management Association (SCHIMA) where a copy is:
  - forwarded to the Regional Directors to announce at Regional meetings;
  - posted on the SCHIMA Web page; and
  - published in the SCHIMA newsletter
- Posted on the State Government Job Vacancy web site.

Applicants are asked to send or fax a completed state application to the Data Abstraction Specialist or Program Coordinator. A vacancy announcement and sample letter can be found in Appendix B.

## 2. Screening Process

Each completed state application is reviewed and ranked based on whether they have AHIMA certification and the amount of work experience.

- 1 = applicant has AHIMA certification and at least two (2) years of coding and/or abstraction experience
- 2 = applicant has AHIMA certification and less than two (2) years of coding and/or abstraction experience; or
- 3 = applicant does not have AHIMA certification, however has more than two (2) years of coding and/or abstraction experience (must be within the last three years).
- 4 = applicant does not have AHIMA certification and has less than two (2) years of coding and/or abstraction experience.

Applicants with the best qualifications and experience are sent a letter scheduling an interview date and time. A sample letter can be found in Appendix C.

## 3. Interviewing

Each applicant is scheduled for a one (1) hour interview which is conducted by a 3-4 person panel. To provide some consistency to the interview process, each interviewer is given an outline of the interview process which is divided into three segments: formal interview, demonstration of skills, and follow-up. A copy of the interview and testing tools can be found in Appendix B.

### 1. Formal Interview:

An interview questionnaire was developed to ensure that all applicants are asked the same questions regarding their qualifications and work experience. As part of the interview process, each applicant is given an overview of the South Carolina Injury Surveillance Program including the roles and responsibilities of our partners. The Data Abstractor's job description and record review process are also covered. The amount of travel, importance of maintaining confidentiality and providing quality data are stressed. This segment of the interview process should take approximately 20-25 minutes.

### 2. Demonstration of Skills:

Applicants are required to give a demonstration of their coding and data abstraction skills. Each applicant is taken to another office and given 30 minutes to demonstrate their skills by performing the following:

1. Code four (4) scenarios. This demonstrates the ability to interpret documentation, use the coding manual (provided), and code using diagnostic and E-Coding protocol.
2. Paper Abstraction. This demonstrates the ability to:
  - read and follow directions;
  - familiarity of the medical record; and
  - quickly review the medical record and record the data requested on the abstraction form.

*Note: Paper copies of an ED medical record is used since it is shorter and time is limited. However, identifying information is changed for confidential purposes.*

Upon completion, the abstraction exercises are scored by the Data Abstraction Specialist. The score is then recorded on the interview tool and is used in calculating total points given for the entire interview.

3. Follow-up:

Following the skills portion of the interview, each applicant is given the opportunity to ask more questions and clarify any of the information presented to them during the formal interview. This should take no more than 5 minutes.

4. Selection and Hiring

Following each interview, the interview tools are completed and totaled. The panel discusses the qualifications of each applicant and records any significant remarks. Interview tools are grouped by region and applicants within each region's scores are compared. After checking references and conducting a SLED check, the applicant with the highest score is offered the position.

Due to the difficulty in recruiting applicants with the skills and experience required, the recruitment and interview process sometimes takes longer. Therefore, once a selection has been made, the Program Coordinator calls the applicant to verify if he/she is still interested in working with our program. After the applicant indicates that they are still interested in the position, a formal letter offering the position is then sent along with the hiring paperwork. A date and time is then scheduled for the new Data Abstractor to receive his/her initial training.

## Section II

### Data Abstractor's Training

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This section gives an overview of each type of training the SCIS Program staff provide the Data Abstractors. Each Data Abstractor is required to attend an initial training and two (2) semi-annual workshops per year for which they receive continuing education credit. Sample training agendas and workshop summaries can be found in Appendix D.

#### 1. Initial Training

The initial training is for newly hired Data Abstractors. This training can be conducted as a group training or individually (when only one Data Abstractor needs to be trained). This training usually requires 5-6 hours due to the volume of information that needs to be disseminated to the Data Abstractors.

1. Group Training (statewide Data Abstractors) - this training is usually conducted in Columbia since its a central location for those coming from all over the state. During this training, SCIS program partners take an active part in presenting information that relate to the SCIS program and abstraction process. After the review of the data abstraction tools, Data Abstractors are given the opportunity to abstract dummy medical records. The Data Abstraction Specialist then reviews the abstraction and encourages questions and feedback from the Data Abstractors.
2. Group Training (regional) or individual - When this training is conducted on an individual basis or with more than one Data Abstractor from the same region, it is usually conducted by the Data Abstraction Specialist at a hospital site. In this case the Initial and On-Site Abstraction Trainings are combined. During the review of the data abstraction tools, instead of abstracting a dummy record, actual records identified on the random sample are abstracted. The Data Abstraction Specialist reviews each abstracted record for completeness and accurate data entry. Questions and feedback are encouraged during this time.

As a part of the initial training, each Data Abstractor is asked to perform several paper abstractions on the abstraction forms, which are then reviewed by the Data Abstraction Specialist. After the Data Abstraction Specialist reviews and verifies the data, the Data Abstractor is then trained to input the data from the abstraction form into the EPI6 Info program on the computer. Further training is given on how to transfer the data from the computer to a diskette, which will be sent to the Program Coordinator with each time sheet.

To ensure a smooth and consistent training process, the SCIS Program staff developed a Data Abstractors Reference Manual to provide Data Abstractors with step-by-step instructions for carrying out the abstraction process. Detailed instructions are given for every part of the abstraction process. A copy of all forms used in the abstraction process are located at the end of

each section of the manual. When needed, these forms can be xeroxed and used.

The Data Abstractors Reference Manual is divided into ten (10) sections and is completely reviewed during the initial training. Each manual includes the following:

- Administrative and Hiring Issues (includes confidentiality statements)
- Payroll and Travel Reimbursement
- Laptop Computer Procedures
- Abstraction Package
- Data Abstraction Tools (Manuals)
- Quality Assurance Measures
- Reference Materials

As changes occur, the manual is revised and the Data Abstractors are notified. When significant changes are made, they are discussed during the semi-annual workshops. See Appendix E for a copy of the Data Abstractors Reference Manual.

## 2. On-Site Abstraction Training

Each Data Abtractor receives one-on-one training with the Data Abstraction Specialist on their first hospital visit to abstract records. This training is usually conducted at a hospital in the Data Abtractor's region. The training includes a review of: payroll and travel forms, scheduling hospitals, and the abstraction tools. This training utilizes the data abstraction forms and manuals. The Data Abstraction Specialist walks through the process of entering data on the computer, copying data to the diskette from the laptop computer and vice-versa. This is necessary since the Data Abstractors will be submitting data with each time sheet.

## C. Semi-Annual Training

Data Abstraction Workshops are held twice a year to review program changes with the Data Abstractors and other SCIS Program staff. These workshops give Data Abstractors an opportunity to interact with each other and provide feedback to Program staff about problems experienced or changes to enhance the program. The following topics are standing workshop agenda items:

- Data Confidentiality (new confidentiality statements are signed each year)
- Feedback and Findings on Abstracted Data
- Abstraction Process Updates and Changes
- Data Abtractor Feedback

## 4. Follow-up Training

Follow-up training is conducted when there are continuous problems with the abstracted data. The Data Abstraction Specialist or Program Coordinator reviews the problems with each Data Abtractor. This training is necessary to ensure that quality data is submitted by the Data Abstractors.

### Section III

#### Data Abstraction Process

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Data abstraction is the process of extracting information or data from a variety of resources. This section describes how the South Carolina Injury Surveillance Program uses Data Abstractors to extract data from a randomly selected sample of Epilepsy, Traumatic Brain and Spinal Cord Injury patients who were admitted and discharged from South Carolina hospitals. All data is abstracted on a quarterly basis.

#### 1. Request for Data

The SCIS Program has a partnership with the South Carolina Budget and Control Board, Office of Research and Statistics (ORS) who collects data from the hospitals as mandated by the 1992 Amendment of the SC Code of Law, 1976, Chapter 38, Title 44. A copy of this law can be found in Appendix F. Quarterly data is requested to obtain hospital discharges and emergency department visits with primary and secondary diagnoses coded 800-994 of the ICD-9CM classification. These files are transferred via diskette from ORS to the SCIS Program. The following variables are requested in ASCII format:

- |                          |                               |
|--------------------------|-------------------------------|
| 1. Hospital Identifier   |                               |
| 2. Medical Record Number | 11. E-Code                    |
| 3. Date of Admission     | 12. Type of Care (inpt or ED) |
| 4. Date of Discharge     | 13. Total Charge              |
| 5. Date of Birth         | 14. Principal Payer           |
| 6. Gender                | 15. Discharge Status          |
| 7. Race                  | 16. Patient Name              |
| 8. County of Residence   | 17. Patient Address           |
| 9. Source of Admissions  | 18. Length of Stay            |

#### 2. Data Oversight Council Application

In South Carolina, the health care facility, the health care provider (physician) and the patient identifiers are considered restricted data elements and are not released without approval from the Data Oversight Council (DOC). In order to gain approval to use these elements a DOC Application must be submitted to the Data Oversight Council for approval.

#### C. Random Samples

Once the disk is received from ORS, a copy of the files are kept on the NT computer located in the SCIS Program area and the data is then taken to Medical University of South Carolina (MUSC) for random sample selection. MUSC staff review the data and ensures that duplicate records are not included in the record sample selection. A sample of 1% TBI files, 5% TBI-ED files, and \_\_\_\_% Epilepsy are included in the sample.

The following variables are listed on the random samples: hospital identification number, medical



record number, patient name, admission date, and discharge date.

#### **D. Assigning Hospitals**

Data Abstractors are responsible for abstracting at hospitals located in one of the four regions of the state. The Program Coordinator reviews the random sample and assigns a Data Abstractor to each hospital based on how close they live to the hospital. Days and hours of operation and the number of records to be abstracted at each hospital also factor into which Data Abstractor gets assigned to a particular hospital. For abstraction purposes, the state of South Carolina is broken down into four (4) regions:

Region 1:	Midlands (Richland/Lexington)
Region 2:	Pee Dee (Florence/Horry)
Region 3:	Coastal (Charleston/Beaufort)
Region 4:	Upstate (Greenville/Spartanburg)

As shown above, each region encompasses the counties listed in parenthesis and several other counties.

#### **5. Scheduling Hospital Visits**

Each hospital listed on the random sample is sent a letter requesting that records be pulled for review. The letter identifies the Data Abstractor that will be calling to schedule the visit. A copy of the random sample is sent with the variables sorted in the format requested by the hospital.

#### **6. Collecting Abstracted Data**

Upon arrival, the Data Abstractor initiates the abstraction process by verifying that all information on the random sample list matches the contents of the corresponding medical record. The Data Abstractor then proceeds to review the record looking for the variables that are listed on the abstraction tool. The Data Abstractor enters the information directly into the EPI6 Info computer record file. The data abstraction coding manual is used by the Data Abstractor to provide descriptions of each field and lists values that must be used as responses. The data abstraction coding manuals can be found in Section V of the Data Abstraction Reference Manual (see Appendix E of this manual). Before closing the record, the Data Abstractor verifies that the data has been entered correctly and there are no incomplete fields. At the end of each abstraction session, the Data Abstractor backs-up the abstraction “\*.rec” file on a disk.

7. Data Submission

The Program Coordinator has established a schedule when time sheets should be submitted in order to be processed in a timely manner. Once the Program Coordinator receives the time sheet and data disk, the data on the disk is verified and compared to what the Data Abstractor reported on the Data Abstraction Time Log. Data Abstractors are required to complete this form by documenting date of visit, hospital, and the number of records abstracted for each program. The data is reviewed for errors and the Data Abstractor is reimbursed for the number of records abstracted. Each Data Abstractor must submit a disk of abstracted records with each time sheet.

8. Payroll and Travel Reimbursement

Data Abstractions for the SCIS program receive compensation based on the number of records abstracted at an hourly rate or the number of miles traveled. See Section II of the Data Abstractors Manual in Appendix E for a detailed description of the Payroll and Travel Procedures.

## Section IV

### Quality Assurance

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Quality Assurance measures are used by the SCIS Program to improve efficiency, enhance the data abstraction process, and to ensure that data is free of errors or omissions. Some of the Quality Assurance measures used by the SCIS Program are listed below.

1.     Abstraction Assignment Chart

Developed to improve efficiency of the data abstraction process, this chart provides Data Abstractors with 1) hospitals to which they are assigned, 2) Medical Records Director's or hospital contact name and telephone number, 3) number of records to be abstracted at hospital site, and 4) the amount of time it should take to abstract the records.

The Program Coordinator uses this chart to make assignments, monitor completed hospitals sites, and the number of records abstracted at each site. By including the number of hours to abstract records at each site, the Program Coordinator can determine how long it will take to complete a particular abstraction period. A copy of this chart can be found on page 33 of the Data Abstraction Reference Manual located in Appendix E of this manual.

2.     Abstraction Feedback Report

This report was developed to provide the SCIS Program staff with information to enhance the abstraction process. It is used by the Data Abstractor to identify problems during the abstraction period which may include: scheduling hospitals for abstractions, change in hospital contact staff, unavailability of records, and other concerns or problems expressed by the Data Abstractors or hospital staff. This report is submitted with each time sheet during the abstraction period. This report also lets the Program Coordinator know what hospital sites the Data Abstractor will be visiting the next pay period. A copy of this chart can be found on page 21 of the Data Abstraction Reference Manual located in Appendix E of this manual.

3.     Abstracted Data Reviews

1.     List of Missing/Incorrect Variables (Interim Report Card)

The Program Coordinator receives data with each time sheet and reviews for accuracy. A report is generated and sent to each Data Abstractor identifying missing or incorrect variables, and data completeness. The Data Abstractor is expected to correct any data entered from the "random sample" and resubmit prior to the end of the abstraction period. No other data is to be changed unless the Data Abstractor has verified the change in the medical record. No Data Abstractor will be paid for re-reviewing medical records in order to correct errors found.

2. Feedback Report (Report Card)

This document is generated by the Epidemiologist at the Medical University of South Carolina during data analysis. This information will be presented to the Data Abstractors at the end of each abstraction period. Depending on the type and consistency of the error, the Data Abstractor may receive one-on-one training with the Data Abstraction Specialist or the Program Coordinator.

4. Semi-Annual Injury Surveillance Data Abstractor's Workshop

SCIS program staff conduct Data Abstractors workshops twice yearly. The goal of the workshop is to inform all surveillance Data Abstractors of program changes, improvements, data findings and feedback. These workshops also provide the Data Abstractors an opportunity to express concerns or ideas for program improvements.

5. Follow-up Training

Follow-up training is conducted when there are continuous problems with the data being abstracted. The Data Abstraction Specialist reviews the analysis of error rates received from the MUSC with the Data Abstractor. The Data Abstraction Specialist and Data Abstractor work together to reduce the number of errors the Data Abstractor is making when abstracting the records and/or entering the data.

**F. Re-Abstraction Process**

This process was developed to insure that abstracted data is valid and contains little or no errors or omissions. The re-abstraction process will be conducted by the Data Abstraction Specialist twice a year.

7. Hospital Contact Survey

The Hospital Contact Survey is sent out each year to Medical Record Directors at each of the hospitals where the program abstracts records. This survey was developed to verify hospital contact information, hours/days of operation, availability of medical records, and gives the Medical Record Directors an opportunity to provide feedback on our abstraction staff and process. The Data Abstractors are asked to verify the contact information each abstraction period. A copy of this survey can be found on Page 40 of the Data Abstractors Reference Manual located in Appendix E.

## **Section V**

### **Appendices**

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1. SCIS Program Abbreviations and Definitions
2. Recruitment Letter and Vacancy Announcement
3. Interview Tools
4. Sample Training Agendas / Summaries
5. Data Abstractors Reference Manual
6. 1992 Amendment of the SC Code of Law 1976, Chapter 38, Title 44  
for Traumatic Brain Injury

## Appendix A

### SCIS Program Abbreviations and Definitions

## Appendix B

### Recruitment Letter and Vacancy Announcement



## Appendix C

### Interview Tools:

Interview Letter

Interview Process for Data Abstraction Position Outline

Overview of SCIS Program

Job Description

DA Region Chart

Interview Questions

Data Abstraction Testing Tool

# Appendix D

## Training Agendas

## Appendix E

### Data Abstractors Reference Manual

## Appendix F

1992 Amendment of the SC Code of Law 1976,  
Chapter 38, Title 44  
for Traumatic Brain Injury